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ABSTRACT

Note-taking at college lectures is believed to provide an external memory device for review and to require the student to encode the learning material into a personally meaningful form. A closer examination of the kinds of notes made and used by students may help to explain the relationship between the note-taking process and individual differences. In order to determine the effect of using a preferred or nonpreferred lecture note method on multiple-choice and essay test scores and on post-lecture note preference, college students (N=99) were assigned to take their own notes or to use full or partial notes distributed to them while listening to a lecture. Results indicate that the kinds of notes used by students have a significant effect on achievement, and that achievement does not interact with study technique preference. In both multiple-choice and essay tests, students using full distributed notes did not score as well as students using their own or partial notes, suggesting the importance of personal encoding. Students initially preferring their own or full notes tended to prefer partial notes after the lecture. (Author/NRB)

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EFFECT OF PREFERENCE FOR ASSIGNED LECTURE NOTES ON STUDENT ACHIEVEMENT

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Paper presented at the Annual Meeting of the American Psychological Association, Montreal, Quebec, Canada, September 3, 1980.

Effect of Preference for Assigned Lecture Notes on Student Achievement[1]

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Lectures are a common method of college instruction, and it is usual for students to take notes over lectures. The advantages of notes are believed to be that they provide an external memory device for later review as well as require the student to encode the learning material into a personally meaningful form. However previous studies have not clearly established that note takers learn more than students who do not take notes (cf. Peters, 1972; Crawford, 1925; DiVesta & Gray, 1972). Howe (1975) has pointed out that in order to explain these inconsistent results, researchers must look more closely into the kinds of notes made and used by students so that more can be learned about the relationships between the note-taking process and individual differences.

Only a few studies, though, have examined these relationships. One study (Annis & Davis, 1978) assessed student study technique preferences and then assigned students to a preferred or nonpreferred study technique. They found students generally scored better when using a nonpreferred study technique.

Collingwood and Hughes (1978) looked more specifically at various kinds of notes. They assessed student preference for kind of notes and then assigned students to use either their preferred or nonpreferred full set of lecture notes, a partial outline with only major headings supplied, or their own notes. The order of the treatment means in increasing order was own notes, partial notes, and full notes suggesting that the external storage function of notes was most important. Students who preferred full notes scored highest on the multiple-choice

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[1]Paper presented at the Annual Meetings of the American Psychological Association, Montreal, Quebec, Canada, September 3, 1980.

test when using full notes, while students preferring both partial and own notes scored highest when using partial notes. Thus in contrast to the results of the Annis and Davis study, students did not always do best when using a non-preferred study technique; instead they found an interaction between preference and treatment. All groups scored better when given some form of lecture note handout. Student preference for kind of lecture notes, as measured after the experimental lecture, shifted in favor of full or partial notes.

This study does offer interesting insights into the relationships between learning and kinds of notes, but it also has some problems. First, only 57 subjects were used and the number of students preferring each lecture note treatment was very uneven. Second, each student participated in all three treatment conditions on a rotating basis so it is quite likely there was contamination of treatment effects. Third, achievement was measured only by multiple-choice questions, even though a review of the previous literature makes it clear that the beneficial effects of note taking are greater for recall (measured by essay questions) than for recognition (measured by multiple-choice questions) learning. Thus the true effects of the different kinds of notes on learning may have been masked.

The purpose of the present study was to empirically investigate the most effective kind of lecture notes by manipulating the kind of notes taken by or provided to the student (full copy of the lecturer's notes, partial outline of lecture with only major headings supplied, or student's own notes) and the student's preference for kind of notes before the study begins (full, partial, or own notes) on student achievement, as measured by both multiple-choice and essay questions, and on student preference for kind of notes after hearing the lecture and taking the achievement test.

Subjects were 99 college students enrolled in six sections of a sophomore Human Growth and Development course. Prior to the main part of the study, all students completed a prequestionnaire designed to assess whether they preferred to use their own, partial , or full lecture notes during a lecture. Students from each group of two of the classes randomly selected from the six classrooms participating in the study were assigned to one of the three following treatment conditions: take own notes without receiving any special instructions, receive set of partial notes, and receive set of full notes and asked not to write own notes.

On the day of the lecture all students received a packet of materials individually prepared for them on the basis of their preference for kind of notes and the kind of lecture notes assigned to their classroom section. Each packet contained instructions for using their preferred or nonpreferred lecture note treatment during the lecture all students heard. Next a 40-minute lecture on the principles of behavior modification was presented to each of the six sections by the researcher. This is a topic ordinarily discussed in this course.

Two weeks after the completion of the lecture a regular midterm examination was given. In order to make the entire procedure of the research study as close as possible to the normal teaching situation so that valid recommendations for educational practice could be made, the achievement test questions on the behavior modification lecture were included as a section on the midterm. However the questions were scored separately and had no effect on the students' actual grades.

The 21-point achievement test consisted of 10 multiple-choice questions and 5 short-answer essay questions worth a total of 11 points. After they finished the exam, all students were asked to complete a postquestionnaire which again asked students whether they preferred to use their own, partial, or full notes

while listening to a lecture.

The study was thus a 3 x 3 factorial design. The two independent variables were kind of notes used (own, partial, full) and prequestionnaire preference for kind of notes (own, partial, full) which were combined to form 9 treatment conditions.

An unweighted-means analysis of variance was performed on the dependent variables of number of correct responses on the multiple-choice items and essay items. In addition, the changes in preference for kind of lecture notes from prequestionnaire to postquestionnaire were treated as having direction (ranging from own notes to full notes) and a sign test was used to test the changes for significance.

The analysis of variance for multiple-choice scores indicated a significant effect for the kind of notes used ($F = 6.65$, $df = 2/98$; $p < .01$). The mean scores were 5.30 for full notes users, 5.43 for own notes, and 6.87 for partial notes users. A post hoc Newman-Keuls test indicated that none of these differences were significant. The analysis of variance for multiple-choice scores also indicated an effect for prequestionnaire notes preference ($F = 5.38$, $df = 2/98$; $p < .01$). The mean scores were 3.71 for students preferring full notes, 5.87 for students preferring partial notes, and 6.46 for students preferring own notes. A post hoc Newman-Keuls test indicated that both partial notes and own notes users scored significantly better ($p < .01$) than full notes users. There were no significant differences, however, between partial and own notes users.

The analysis of variance for essay scores indicated a significant effect for kind of notes used ($F = 18.18$, $df = 2/98$; $p < .0001$). The mean scores were 1.97 for full notes, 3.97 for partial notes, and 5.54 for own notes. A post hoc Newman-Keuls test revealed that partial and own notes users scored significantly

($p < .01$) better than full notes users, and own notes users also scored significantly ($p < .05$) better than partial notes users.

The sign test revealed that the changes in distribution of responses from the prequestionnaire to the post uestionnaire were not significant. Students tended to retain their original note preference.

The results indicate that the kinds of notes used by students in this study have a significant effect on achievement, and that achievement does not interact with study technique preference. Even though multiple-choice tests basically are concerned with recognition of information and essay tests are concerned with recall of information, the order of treatment means for the two tests was essentially the same. In both cases students using full notes did not score as well as students using their own or partial notes which required more encoding.

Thus these results suggest, in contrast to those of Collingwood and Hughes (1978), that the encoding function of note taking is most important. Apparently it was not sufficient to provide students solely with an external memory device as was the case with the students using full notes. Higher multiple-choice and essay scores were associated with encoding the material into a personally meaningful form as was the case when students used their own or partial notes. This conclusion was supported by the finding that students preferring partial or own notes also scored better on the multiple-choice exam than students preferring full notes. Apparently these students recognized, at least intuitively, the importance of encoding the learning material, and were able to perform some encoding operations despite their assigned treatment condition.

Unlike the Collingwood and Hughes study, there was no significant change from prequestionnaire to postquestionnaire in student preference for kind of lecture notes. However the results, though not reaching significance, do indicate

a tendency for the partial notes preference to remain the same while both the full and own notes preferences tended to shift toward partial notes which was by far the most popular choice. It appears that students recognize the importance of encoding their own notes as well as having available some structure for their notes as was the case with the students using partial notes. Annis and Davis (1975) provide support for the idea that distributing lecture notes in addition to the students' own notes results in higher achievement.

In conclusion, the results of this study indicate that the efficiency of learning from lecture can be improved by the use of partial or own notes. Partial notes are somewhat more efficient for multiple-choice tests requiring the recognition of information, and own notes are more effective for essay tests requiring the recall of information. Both own and partial notes are more effective than full notes suggesting that the encoding function of note taking is more effective than the external memory device function, especially for essay tests. Further research is needed into the effectiveness of various kinds of lecture notes for different kinds of students and learning situations. The ultimate goal is to determine the most effective kinds of notes for every learning situation.

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